

## Chapter 10: PORTABLE AND STATIONARY AGRICULTURAL SOURCES

This chapter describes the minimum criteria and requirements for Carl Moyer Program portable and stationary agricultural engine projects and non-engine agricultural projects as defined in Health and Safety Code section 39011.5. Requirements for self-propelled agricultural use equipment (e.g., tractors) may be found in Chapter 7: Off-Road Compression-Ignition Equipment. Air districts may set more stringent requirements based on local priorities.

### A. Projects Eligible for Funding

Most engines eligible for funding under this chapter are regulated under the Stationary Engine Airborne Toxic Control Measure (ATCM), the Portable Engine ATCM, and/or air district rule. There are limited funding opportunities for engines subject to these rules.

**Table 10-1**  
**Summary of Agricultural Sources Funding Opportunities**

Engine or project type	Subject to ARB Rule	Moyer Funding Opportunities <sup>1</sup>
Stationary diesel agricultural engines	Agricultural Provisions of the Stationary Engine Airborne Toxic Control Measure (ATCM) <sup>2</sup>	Uncontrolled engine repowers: Very limited funding opportunity
Portable diesel agricultural engines		Tier 1 and 2 engine repowers: Eligible through 12/31/13, Limited opportunity through 12/31/15  Tier 3 engine repowers: Not limited by regulation
Portable diesel agricultural engines	Portable Engine ATCM <sup>3</sup>	Limited opportunities
Stationary spark-ignited agricultural engine repower projects	No	Limited opportunities
Electric motors new purchase	No	Limited opportunities
Non-engine agricultural use projects	No	Limited opportunities

<sup>1</sup>Limited funding opportunities mean that projects funding opportunities may be impacted by the compliance dates of the ATCM or air districts local rules. Contact air district Moyer Program staff or consult Carl Moyer Implementation Charts <http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm> in addition to these guidelines.

<sup>2</sup>Stationary Engine ATCM: <http://www.arb.ca.gov/diesel/statport.htm#Stationary>

<sup>3</sup>Portable Engine ATCM: <http://www.arb.ca.gov/diesel/peatcm/peatcm.htm>

Project Types: Considering Table 10-1, the following categories are eligible projects:

1. Repower Existing Equipment
2. New Purchase: The Carl Moyer Program allows funding for the purchase of electric motors for new, non-replacement stationary equipment installations.
3. Retrofit Purchase

4. Non-Engine Agricultural Use Projects: Non-engine agricultural use projects may receive Carl Moyer Program funding with approval from ARB on a case-by-case basis.

Please see Section C (Project Criteria) for detailed minimum eligibility requirements for all agricultural sources project categories.

## **B. Maximum Eligible Funding Amounts**

Table 10-2 summarizes the maximum eligible funding for each project type. All projects are also subject to the cost-effectiveness threshold defined in Appendix H.

**Table 10-2**  
**Maximum Percent Funding for**  
**Portable and Stationary Agricultural Sources Projects**

<b>Project</b>	<b>Maximum</b>
Repower with Diesel Engine	85 percent
Repower with Certified SI Engine	85 percent
Repower with Electric Motor	85 percent
Electric Motor New Purchase	20 percent
Retrofit	100 percent

## **C. Project Criteria**

The minimum qualifications portable and stationary agricultural source projects are listed below. All projects must also conform to the requirements in Chapter 2: General Criteria and in Chapter 3: Program Administration. Participating air districts retain the authority to impose additional requirements in order to address local concerns.

### **1. General Agricultural Sources Project Criteria**

- (A) Existing project engines greater than 25 horsepower (hp) (19 kilowatts (kW)) are eligible for funding. The replacement engines may be smaller than 25 hp (19kW). An electric motor less than 19kW or 25 hp may be funded if the applicant provides documentation from the equipment dealer that the electric motor less than 19 kW performs the same work as a 25 or greater hp diesel engine.
- (B) The maximum project life for agricultural use engine projects is as follows:
  - (1) Diesel engines 7 years
  - (2) Spark-ignited engines 7 years
  - (3) Electric motors 10 years
  - (4) Portable Farm equipment\* (all projects) 10 years\*

\*Air districts are required to offer a 10 year project life for portable farm equipment; however, applicants may request a project life less than 10 years. Farm equipment is defined in Appendix B.

A longer project life may receive case-by-case approval by ARB if applicants provide justifying documentation. The maximum project life does not consider regulatory requirements, which may reduce actual project life below these maximum values.

- (C) In general, projects must have a minimum project life of three years.
  - (1) A one year project life is allowed for engines subject to the agricultural engine requirements in the Stationary Engine ATCM. Stationary engines not regulated by the Stationary ATCM must use a minimum three year project life.
  - (2) In accordance with SBx2 3, portable farm equipment may be eligible for funding up to the compliance date of an applicable in-use rule and a 10 year project life. In order to be eligible, portable farm equipment projects must be under fully executed contract, and must be installed in the equipment and in operation prior to the applicable compliance date.
- (D) State and air district rules impacting agricultural sources must be considered when determining whether projects provide emission reductions surplus to regulatory requirements. Moyer eligibility may be based on the requirements of the local rule if local rule meets the requirements of Health and Safety Code section 39666(d). An air district requesting to have eligibility based on local rules must have its Air Pollution Control Officer self-certify via email or letter to their ARB Moyer liaison that the local rule is equally as effective as or more stringent than the ATCM.
- (E) Cost-effectiveness calculations must use the hour-based formula as discussed in Appendix C. Fuel usage may only be used with case-by-case approval from ARB. If using the fuel-based formula, usage must be based on two years of historical fuel usage documentation specific for the equipment being funded. Documentation may include fuel logs, purchase receipts or ledger entries.
- (F) Future annual hours of equipment operation for determining emission reductions must be based only on readings from an installed and fully operational hour meter. If equipment does not have functioning hour meter at the time of the project, the meter must be repaired or replaced. If during the project life the hour meter fails for any reason, the hour meter must be repaired or replaced as soon as possible at the owner's cost. If case-by-case approval was provided by ARB to use fuel usage for

determining emission reductions, then future annual fuel usage must be based on fuel logs, purchase receipts or ledger entries specific to the funded equipment.

- (G) The certification emission standard and Tier designation for the engine must be determined from the ARB Executive Order issued for that engine. Executive Orders for off-road engines may be found at <http://www.arb.ca.gov/msprog/offroad/cert/cert.php>
- (H) Engines that are participating in the "Tier 4 Early Introduction Incentive for Engine Manufacturers" program, as detailed in California Code of Regulations, title 13, section 2423(b)(6), are eligible for Carl Moyer Program funding provided that they are certified to the final Tier 4 emission standards. The ARB Executive Order for these engines indicates that the engines are certified under this provision. The emission rates for these engines used to determine cost-effectiveness shall be equivalent to the emission factors associated with Tier 3 engines. Air districts must retain this documentation in the project file.
- (I) For equipment with baseline engines manufactured under the flexibility provision, detailed in California Code of Regulations, title 13, section 2423(d), baseline emission rates shall be determined by using the previous applicable Tier emission standard for that engine model year and horsepower rating. The ARB Executive Order for these engines indicates that the engines are certified under this provision. Air districts must retain this documentation in the project file.
- (J) Funding for pump and associated plumbing costs associated with engine/motor projects require a case-by-case approval by ARB. However, the pump cost in a submersible pump-motor system is allowable and does not require a case-by-case.
- (K) Costs for necessary peripheral equipment associated with electric motor projects from the service pole forward (e.g., service pole with guy wire, control panel, motor leads, precast concrete pad, headshaft or gear head and tubing if required for diesel to motor conversion, and up to 150 feet of connecting electric line from the pole forward to the motor) may be included in the grant award amount.
- (L) Variable frequency devices (VFD) may be eligible for funding provided:
  - (1) The air district provides notification to ARB liaison with correspondence to be placed in the air district project file.
  - (2) The air district reports VFD cost and serial number information in CARL.

- (3) The VFD cost less than 50 percent of the new motor cost. A VFD cost that is 50 percent or greater than the new motor cost requires a case-by-case approval from ARB.
- (M) Air district match funds may be used for infrastructure purchase and installation (e.g., line extension for electric motor projects for only Moyer qualifying project categories except as prohibited in Health and Safety Code section 44287(j)).
- (N) Electrical line extension costs are not eligible for funding if a motor is not included with the project.
- (O) Air district match funds may be used to offset the higher cost of electricity relative to diesel fuel, if applicable. In this case, the fuel cost difference will be accounted for when calculating the cost-effectiveness of the project.
- (P) In electric motor projects, the applicant must have documentation of payment to the local utility company for power installation. This documentation requirement applies to new motor and repower installations.
- (Q) A new electric motor on an agricultural irrigation pump project that is under contract may be considered for invoice payment once the motor has been delivered to the project site and the motor has been connected to the electricity grid.
- (R) All case-by-case projects must receive approval from ARB prior to funding. These projects must follow the requirements as described in Chapter 3, Section Y.

## 2. Repower

A repower is the replacement of the in-use engine with an electric motor or a new, current model year engine instead of rebuilding the existing engine to its original specifications.

- (A) A repower of an engine must be with one of the following:
  - (1) A new electric motor.
  - (2) A new off-road diesel engine certified to the current applicable emission standards.
  - (3) A new off-road spark-ignited (SI) engine certified to the current applicable emission standards.

- (4) A new SI engine that exceeds air district emission requirements and is subject to and complies with air district permitting, monitoring, record keeping and reporting requirements
- (B) New engine/motor repower projects in which the horsepower of the new engine/motor is an increase to 150 percent or larger from the baseline (existing) engine requires a case-by-case approval from ARB.
- (C) A repower project in which the total number of existing engines is different than the total number of replacement engines/motors requires a case-by-case approval from ARB.
- (D) SI engines cannot be replaced with diesel engines.
- (E) Electric motors may replace diesel or SI engines.
- (F) Genset engines are not eligible for repowers.
- (G) A repower of an emissions-controlled SI engine with a new SI engine that meets or exceeds air district emission requirements and is subject to and complies with air district permitting, monitoring, record keeping and reporting requirements is eligible and must achieve an annual oxides of nitrogen (NOx) emission benefit of at least 15 percent.
- (H) Repowering to a Tier 1 or Tier 2 diesel engine is not allowed.
- (I) If repowering with an engine meeting the current applicable standard is technically infeasible, unsafe, or not available when the air district commits to the proposed project, the replacement engine must meet the most current practicable previously applicable emission standard. For purposes of this section, air district's commitment to a proposed project shall be consistent with that stated in their policies and procedures. The air district shall determine eligibility of a repower project using an engine certified to a previous emission standard by one of the following methods:
  - (1) At the applicant's request, confirmation of availability of an engine meeting the most recent emission standards or Tier may be limited to the same manufacturer as the existing engine.
  - (2) If the air district and the applicant do not have an executed contract within six months of project commitment, then the air district must recheck for the availability of engines meeting the current standard.
  - (3) Documentation that engines meeting the current applicable standard are unavailable must be provided to the air district. Acceptable documentation

that engines meeting the most recent emission standard are unavailable include:

- a. Verifiable information from the engine manufacturer, engine distributor and/or engine dealer regarding the unavailability of engines meeting the current emission standard or Tier.
  - b. Confirmation (a written declaration by the air district is acceptable) that engines from a specific manufacturer meeting the current emission standard or Tier are not certified (Executive Order is not available on ARB website). Executive Orders for off-road engines may be found at <http://www.arb.ca.gov/msprog/offroad/cert/cert.php>.
- (J) Confirmation (a written declaration by the air district is acceptable) that engines from a specific manufacturer meeting the current emission standard or Tier are not certified (Executive Order is not available on ARB website). Executive Orders for off-road engines may be found at <http://www.arb.ca.gov/msprog/offroad/cert/cert.php>.
- (K) Equipment manufactured under the “Flexibility Provisions for Equipment Manufacturers”, as detailed in California Code of Regulation, title 13, section 2423(d), are ineligible for Carl Moyer Program funding as a replacement engine.
- (L) The use of an uncertified SI engine shall be subject to approval by ARB staff.
- (1) Uncertified SI engines must include currently available emission control components such as closed-loop fuel control systems, and three-way catalysts.
  - (2) Uncertified SI engines must be source tested with an ARB-approved testing procedure, such as ARB Test Method 100, following air district requirements. Source testing shall be conducted upon installation.
  - (3) Uncertified SI engines must be emission tested using a portable analyzer every 1,000 hours of operation and at least annually, or following air district monitoring requirements, whichever is most stringent. The emission tests shall measure NOx and hydrocarbon emissions. An alternative monitoring schedule may be used upon approval by ARB staff.
  - (4) The costs associated with source testing and monitoring requirements for uncertified SI engines are not eligible for funding.

- (M) All engines replaced as part of a repower project must be destroyed and rendered useless, consistent with the requirements of Chapter 3: Project Administration, Section BB.

3. New Purchase: A new purchase is an engine or motor that is not replacing an existing engine. This is currently only available for non-mobile agricultural electric motors purchases of new motors. Moyer eligible peripheral equipment costs are covered in this chapter. Refer to section C. Project Criteria, item (K).

#### 4. Retrofit

Retrofit is the installation of an ARB-verified diesel emission control system on an existing engine. Examples include, but are not limited to, particulate filters and diesel oxidation catalysts. More information on retrofits may be found at <http://www.arb.ca.gov/diesel/verdev/verdev.htm>.

- (A) A retrofit of an uncontrolled SI engine that reduces NOx must be with a retrofit kit that is verified to reduce NOx or NOx + Non-Methane Hydrocarbons (NMHC) emissions to the currently applicable off-road LSI engine standard.
- (B) Engines equipped with original engine manufacturer aftertreatment devices are ineligible for retrofit funding due to issues with engine warranty and anti-tampering provisions.
- (C) The cost of the retrofit, filters, hour meter if none exists on the equipment, and maintenance of the retrofit device needed during the project life is eligible for incentive funding, provided its inclusion in the project cost still meets the weighted cost-effectiveness limit. The datalogging cost of a retrofit-only project cannot be included in the total project cost.

5. Non-Engine Agricultural Use Projects require a case-by-case approval by ARB prior to receiving Moyer funds.

#### 6. Projects Subject to the Agricultural Provisions of the Stationary Engine ATCM

- (A) Diesel engines regulated under the Stationary Engine ATCM must be registered (or permitted) in an air district to be eligible for repower projects.
- (B) Diesel engine to diesel engine repower costs claiming only NOx and reactive organic gases (ROG) emission benefits based on surplus to local rules and meeting the conditions of section C.1.D are eligible for Carl Moyer Program funding at a reduced rate of half of the typical 85 percent repower (i.e., 42.5 percent).



- (C) A retrofit of an uncontrolled off-road diesel engine (regulated under the Stationary Engine ATCM) that reduces NO<sub>x</sub> must be with a retrofit kit that is verified to reduce NO<sub>x</sub> or NO<sub>x</sub>+NMHC emissions to the applicable current off-road engine Tier standard or less.
- (D) For more information on eligibility of engines regulated by the Stationary Engine ATCM, please see the Stationary Engine Airborne Toxic Control Measure Implementation Chart available at:  
<http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm>.

## 7. Projects Subject to the Portable Engine ACTM

- (A) Portable equipment owned by agricultural service companies, rental companies, public agencies, and non-agricultural service companies are subject to the Portable Engine ATCM and meet the definition of farm equipment per Chapter 7. These projects must follow the criteria outlined in this chapter (Chapter 10).
- (B) If portable diesel engines are required by the air district to be registered or permitted then these engines must have registration or permits to be eligible for engine repowers.
- (C) Uncontrolled engines subject to the Portable Engine ATCM are not eligible for repowers.
- (D) An existing Tier 1 or Tier 2 engine subject to the Portable Engine ATCM and subject to SBx2 3 may use a 10 year project life and may be eligible for funding up to the compliance date of an applicable in-use rule.
- (E) Portable equipment with Tier 2 engine repowered with a Tier 3 engine must also be equipped with a verified retrofit in order to be eligible for funding.
- (F) Retrofit projects for engines regulated under the Portable Engine ATCM that control particulate matter (PM) must use the highest level technically feasible technology available for the equipment being retrofitted. ARB considers the retrofit device that achieves the highest level of PM reductions (level 3 - 85 percent) and the highest level of NO<sub>x</sub> reductions to be the highest level retrofit.
- (G) For more information on eligibility of engines used in portable equipment, please see the Portable Engine Airborne Toxic Control Measure Implementation Chart available at:  
<http://www.arb.ca.gov/msprog/moyer/guidelines/supplemental-docs.htm>.